En cada caso hallar un vector de longitud 1 en V3 ortogonal a la vez de A y B:

a) A= i+j+k B= 2i+ 3j –k

b) A= 2i – 3j + 4k B= –i + 5j + 7k

c) A= i– 2j + 3k B= –3i + 2j – k

a) A x B = $\begin{vmatrix} i\, j\, k \\ 1\, 1\, 1 \\ 2\, 3 - 1 \end{vmatrix}$ = $[(1)(-1)-(1)(3)]i$ – $[(1)(-1)-(2)(1)]$j + $[(1)(3)-(2)(1)]\,k$

= –4i + 3j + k

$\|v\|$ = $\sqrt{(-4)^2+(3)^2+(-1)^2}$ = $\sqrt{16+9+1}$ = $\sqrt{26}$

u= v/$\|v\|$

u= $\frac{-4}{\sqrt{26}}$, $\frac{3}{\sqrt{26}}$, $\frac{-1}{\sqrt{26}}$

R/. $\mp\frac{1}{\sqrt{26}}$ (4,3,1)

b) A x B = $\begin{vmatrix} i\, j\, k \\ 2-3\, 4 \\ -1\, 5\, 7 \end{vmatrix}$ = (–21–20)i – (14+4)j + (10–3)k

= –41i –18j +7 k

$\|A\ x\ B\|$ = $\sqrt{(-41)^2+(-18)^2+(7)^2}$ = $\sqrt{1681+324+49}$ = $\sqrt{2054}$

u= v/$\|v\|$

u= $\frac{-41}{\sqrt{2054}}$, $\frac{-18}{\sqrt{2054}}$, $\frac{7}{\sqrt{2054}}$

R/. $\mp\frac{1}{\sqrt{2054}}$ (–41,–18,7)

c) A x B = $\begin{vmatrix} i\, j\, k \\ 1-2\ \ 3 \\ -3\ \ 2-1 \end{vmatrix}$ = $[(2)-(6)]i$ – $[(-1)-(-9)]$j + $[(2)-(6)]\,k$

= –4i + –8j – 4k = 1i + 2j +1k

$\|v\|$ = $\sqrt{(1)^2+(2)^2+(1)^2}$ = $\sqrt{1+4+1}$ = $\sqrt{6}$

u= v/$\|v\|$

u= $\frac{1}{\sqrt{6}}$, $\frac{2}{\sqrt{6}}$, $\frac{1}{\sqrt{6}}$

R/. $\mp\frac{1}{\sqrt{6}}$ (1,2,1)